Test Report
Aggregate Gradation

Project Name	PACKAGE 5(1) Improvements of Road Adjecent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Dense Graded Bituminous Macadam
Contractor	Sri. R.LOKESH
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	Hot Mix Plant
Material	Coarse Aggregates
Sample No	2
Date	7-Apr-2018

Weight of Sample: 4000 gms

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	37.5	0	0	0	100	100	Gradation satisfies the MORT&H Specification for Dense graded biyuminous macadam
2	26.5	189	4.725	4.725	95.275	90-100	
3	19	856	21.4	26.125	73.875	71-95	
4	13.2	660	16.5	42.625	57.375	56-80	
5	4.75	661	16.525	59.15	40.85	38-54	
6	2.36	355	8.875	68.025	31.975	28-42	
7	0.3	705	17.625	85.65	14.35	(7-21)	
8	0.075	300	7.5	93.15	6.85	(2-8)	

Note:

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iv. Any query regarding the report must be reported immediately.

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Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	PACKAGE 5(1) Improvements of Road Adjecent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Dense Graded Bituminous Macadam
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Sample No	1
Date	6-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.5	9 KN (min)
2	Marshal Flow	mm	3.5	2 – 5 mm
3	Percent of Air Voids in mix	%	4.3	3-5..
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	72	65 – 75 %
5	Density	g/cc	2.22	2.22 g/cc

Note:

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Project Division
Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	PACKAGE 5(1) Improvements of Road Adjecent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Dense Graded Bituminous Macadam
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Sample No	2
Date	6-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.6	9 KN (min)
2	Marshal Flow	mm	3.6	2 – 5 mm
3	Percent of Air Voids in mix	%	4.5	3-5
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	72	65 – 75 %
5	Density	g/cc	2.21	2.22 g/cc

Note:

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Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	PACKAGE 5(1) Improvements of Road Adjecent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Dense Graded Bituminous Macadam
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Sample No	3
Date	6-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.75	9 KN (min)
2	Marshal Flow	mm	3.5	2 – 5 mm
3	Percent of Air Voids in mix	%	4.6	3-5
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	74	65 – 75 %
5	Density	g/cc	2.22	2.22 g/cc

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Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	PACKAGE 5(1) Improvements of Road Adjecent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Dense Graded Bituminous Macadam
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Sample No	4
Date	9-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.7	9 KN (min)
2	Marshal Flow	mm	3.5	2 – 5 mm
3	Percent of Air Voids in mix	%	4.7	3-5
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	71.4	65 – 75 %
5	Density	g/cc	2.23	2.22 g/cc

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Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	PACKAGE 5(1) Improvements of Road Adjecent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Dense Graded Bituminous Macadam
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Sample No	6
Date	9-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.8	9 KN (min)
2	Marshal Flow	mm	3.3	2 – 5 mm
3	Percent of Air Voids in mix	%	4.45	3-5
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	71.5	65 – 75 %
5	Density	g/cc	2.22	2.22 g/cc

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Project Division
Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	PACKAGE 5(1) Improvements of Road Adjecent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Dense Graded Bituminous Macadam
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Sample No	7
Date	11-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.4	9 KN (min)
2	Marshal Flow	mm	3.6	2 – 5 mm
3	Percent of Air Voids in mix	%	4.25	3-5
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	72	65 – 75 %
5	Density	g/cc	2.23	2.22 g/cc

Note:

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Project Division
Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	PACKAGE 5(1) Improvements of Road Adjecent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Dense Graded Bituminous Macadam
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Sample No	8
Date	11-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.5	9 KN (min)
2	Marshal Flow	mm	3.5	2 – 5 mm
3	Percent of Air Voids in mix	%	4.3	3-5
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	72	65 – 75 %
5	Density	g/cc	2.22	2.22 g/cc

Note:

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Yelahanka Zone
Bangalore

Test Report
Stability of Mix

Project Name	PACKAGE 5(1) Improvements of Road Adjecent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Dense Graded Bituminous Macadam
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Sample No	9
Date	11-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.85	9 KN (min)
2	Marshal Flow	mm	3.5	2 – 5 mm
3	Percent of Air Voids in mix	%	4.25	3-5
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	71.85	65 – 75 %
5	Density	g/cc	2.21	2.22 g/cc

Note:

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Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

Test Report
Binder Content and Mix Gradation

Project Name	PACKAGE 5(1) Improvements of Road Adjecent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Dense Graded Bituminous Macadam
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Sample No	1
Date	6-Apr-2018

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_s)	gm	w_{sb}	1770
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	690
4	Weight of bowl + Sample after extraction (w_s)	gm	w_{sa}	1737
5	Weight of Sample after extraction (i.e. washed aggregates) (S_a)	gm	$S_a = w_{sa} - Eb$	657
6	Weight of Filter paper before extraction (F_b)	gm	F_b	2
7	Weight of Filter paper after extraction (F_a)	gm	F_a	4
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	2
9	Weight of Bitumen without considering Filter paper (W_b)	gm	W_b	33
10	Weight of the Bitumen with considering Filter paper (W_a)	gm	$W_a = w_b - F_d$	31
11	Percentage of the Bitumen (i.e. Binder Content) ($\%_b$)	(%)	$W_a / SbX100$	4.49

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	37.50	0.00	0.00	0.00	100.00	100.00	Gradation satisfies the MORT&H Specification for Dense graded biyuminous macadam
2	26.50	174.00	4.35	4.35	95.65	90-100	
3	19.00	872.00	21.80	26.15	73.85	71-95	
4	13.20	732.00	18.30	44.45	55.55	56-80	
5	4.75	676.00	16.90	61.35	38.65	38-54	
6	2.36	371.00	9.28	70.63	29.38	28-42	
7	0.30	761.00	19.03	89.65	10.35	(7-21)	
8	0.08	276.00	6.90	96.55	3.45	(2-8)	

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Bangalore